

# Greenhouse Gas Emissions and Climate Change

## SECTION SUMMARY

This section describes greenhouse gas (GHG) emissions associated with construction and operation of the proposed Project, as well as climate change.

Section 3.3, Greenhouse Gas Emissions, provides the following:

- a description of the existing setting as it relates to Port GHG emissions and climate change;
- a discussion on the methodology used to determine whether the proposed Project would result in an impact to GHG emissions and climate change;
- an impact analysis of the proposed Project; and
- a description of mitigation measures proposed to reduce any potential impacts, as applicable.

### Key Points of Section 3.3:

The proposed Project would serve to comply with Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) by constructing a new MOTEMS compliance wharf and mooring system for the Shell Marine Oil Terminal at Berths 167-169. Other Project elements include piping and related foundation support, topside equipment replacement, and a new 30-year lease.

Emissions from the proposed Project would exceed significance thresholds for GHG. The proposed Project includes application of Best Management Practices (BMPs), required for all LAHD construction projects. The proposed Project also includes the application of mitigation measure MM AQ-5, as detailed in Section 3.1, Air Quality and Meteorology, that helps to reduce fossil fuel use, which would reduce GHG impacts. BMPs are described in greater detail in Section 3.3.4.1 (Methodology) and mitigation measures are described in greater detail in Section 3.3.4.4 (Impact Determination). Air quality operational mitigation measure MM AQ-5 would also reduce GHG emissions and the effectiveness of this measure is quantified in the analysis.

- **MM AQ-5:** Vessel Speed Reduction Program (VSRP).

LAHD's standard lease measure LM AQ-1 would be included in the tenant lease. The lease measure would further reduce future GHG emissions and serve to comply with Port air quality planning requirements. However, the effectiveness of this measure cannot be quantified at this time for GHG emission reductions.

- **LM AQ-1:** Periodic Review of New Technology and Regulations.

1 In addition, LM GHG-1 would be included in the tenant lease. Although LM GHG-1 would further  
2 reduce future GHG emissions, this measure was not quantified, or taken credit for, because it represents a  
3 financial fund for future GHG-reducing projects that are not known at this time; therefore, reductions  
4 would be speculative.

5 • **LM GHG-1:** GHG Credit Fund.

6 After the application of MM AQ-5, LM AQ-1, and LM GHG-1, impacts would be reduced but would  
7 remain significant and unavoidable for the proposed Project.

8 Discussion of the Project's consistency with federal, statewide, and local plans and policies related to  
9 GHG is provided for informational purposes only.

10

### 3.3.1 Introduction

This section evaluates the GHG emissions and climate change issues associated with the construction and operation of the proposed Project. In addition, this section includes a description of the affected environment, including a discussion of the state of climate change science; the regulatory setting; predicted impacts of the proposed Project; and mitigation measures to address the impacts.

### 3.3.2 Environmental Setting

The proposed project site is located in the Harbor District of the City of Los Angeles in the southwest coastal area of the South Coast Air Basin (SCAB). The SCAB consists of the non-desert portions of Los Angeles, Riverside, and San Bernardino counties and all of Orange County. The air basin covers an area of approximately 15,500 square kilometers (6,000 square miles) and is bounded on the west by the Pacific Ocean; on the north and east by the San Gabriel, San Bernardino, and San Jacinto mountains; and on the south by the San Diego county line.

#### 3.3.2.1 Greenhouse Gas Pollutants

Gases that trap heat in the atmosphere are often called greenhouse gases. The term GHGs includes gases that contribute to the natural greenhouse effect, such as carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O), as well as gases that are only human-made and that are emitted through the use of modern industrial products, such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF<sub>6</sub>), and nitrogen trifluoride (NF<sub>3</sub>). These last four families of gases, while not naturally present in the atmosphere, can trap infrared radiation when present. Together, these gases comprise the major GHGs that are recognized by the Doha Amendments to the Kyoto Accords (United Nations Framework Convention on Climate Change, 1997; Doha, 2012). There are other GHGs that are not recognized by the Kyoto Accords due either to the smaller role that they play in climate change or the uncertainties surrounding their effects. For example, atmospheric water vapor is not recognized by the Kyoto Accords because there is not an obvious correlation between water vapor concentrations and specific human activities. However, water vapor appears to act as a positive feedback mechanism; higher temperatures lead to higher water concentrations, which in turn cause more global warming (Myhre et al., 2013).

The effect each of these gases has on global warming is a combination of the volume of their emissions and their 100-year global warming potential (GWP). GWP, a unitless quantity, indicates, on a pound-for-pound basis, how much a gas will contribute to global warming relative to how much warming would be caused by the same mass of CO<sub>2</sub>. CH<sub>4</sub> and N<sub>2</sub>O are substantially more potent than CO<sub>2</sub>, with GWPs (100-year horizon) of 28 and 265, respectively (IPCC, 2015). However, these natural GHGs are considerably less potent than sulfur hexafluoride and various HFCs and CFCs. For example, SF<sub>6</sub> has a 100-year GWP of 23,500, and CFCs and HFCs have GWPs ranging from 1 to 13,900 (IPCC, 2013b). In emissions inventories, GHG emissions are typically reported in terms of metric tons (“tonnes” or “MTon” equivalent to 1000 kilograms) of carbon dioxide equivalents (CO<sub>2</sub>e), which are calculated as the product of the mass emitted of a given GHG and its specific GWP. In this document, the unit “metric tons” is used to report GHG emissions.

1 The most important GHG in human-induced global warming is CO<sub>2</sub>. While many gases  
2 have much higher GWPs than the naturally occurring GHGs, CO<sub>2</sub> is emitted in vastly  
3 higher quantities and accounts for over 80 percent of the GWP of all GHGs emitted by  
4 the United States (EPA, 2016). Fossil fuel combustion, especially for the generation of  
5 electricity and powering of motor vehicles, has led to substantial increases in CO<sub>2</sub>  
6 emissions and thus substantial increases in global atmospheric CO<sub>2</sub> concentrations over  
7 the last century. In 2005, the atmospheric CO<sub>2</sub> concentration was about 379 parts per  
8 million (ppm), substantially exceeding the natural range over the last 800,000 years that  
9 have been measured in ice core samples (IPCC, 2013; IPCC, 2014). The buildup of CO<sub>2</sub>  
10 in the atmosphere is a result of increased emissions and its relatively long lifespan in the  
11 atmosphere of 50 to 200 years.

12 Concentrations of the second most prominent GHG, CH<sub>4</sub>, have also increased due to  
13 human activities such as rice production, degradation of waste in landfills, cattle farming,  
14 and natural gas mining. In 2011, the atmospheric level of CH<sub>4</sub> was more than double the  
15 pre-industrial level, up to 1,803 parts per billion as compared to 715 parts per billion  
16 (IPCC, 2013; IPCC, 2014). CH<sub>4</sub> has a relatively short atmospheric lifespan of only 12  
17 years, but it has a higher GWP potential than CO<sub>2</sub>.

18 N<sub>2</sub>O concentrations have increased from about 270 parts per billion in pre-industrial  
19 times to about 3124 parts per billion by 2011 (IPCC, 2013; IPCC, 2014). Most of this  
20 increase can be attributed to agricultural practices (such as soil and manure management),  
21 as well as fossil-fuel combustion and the production of some acids. N<sub>2</sub>O has a 120-year  
22 atmospheric lifespan, meaning that, in addition to its relatively large GWP, its influence  
23 is long lasting, which increases its role in global warming.

24 Sulfur hexafluoride (SF<sub>6</sub>), used in the electric industry; refrigerants such as chlorinated  
25 fluorocarbons (CFCs) and hydrofluorocarbons (HFCs); and perfluorocarbons (PFCs) are  
26 present in the atmosphere in relatively small concentrations but have extremely long  
27 lifespans between 32,000 and 50,000 years, making them potent GHGs.

28 GHGs differ from criteria pollutants in that GHG emissions do not cause direct adverse  
29 human health effects. Rather, the direct environmental effect of GHG emissions is the  
30 increase in global temperatures, which in turn has numerous indirect effects on the  
31 environment and humans. For example, some observed changes include shrinking  
32 glaciers; thawing permafrost; later freezing and earlier break-up of ice on rivers, lakes,  
33 and oceans; a lengthened growing season; shifts in plant and animal ranges; and earlier  
34 flowering of trees (IPCC, 2001). Other, longer term environmental impacts of global  
35 warming include sea level rise; changing weather patterns with increases in the severity  
36 of storms and droughts; changes to local and regional ecosystems, including the potential  
37 loss of species; and a reduction in winter snow pack (for example, estimates include a  
38 30–90 percent reduction in snowpack in the Sierra Mountains).

39 Current predictions suggest that in the next 25 years California will experience longer  
40 and more extreme heat waves, greater intensity and frequency of heat waves, and longer  
41 dry periods. More specifically, the California Climate Action Team (CAT, 2010)  
42 biennial assessment on climate change impacts and adaptation options for California  
43 predicted that California could witness the following events:

- 44 • Temperature rises between 2.7-10.5°F by the 2070–2100 time period;

- 1 • 11–18 inches of sea level rise by 2050 and 23 to 55 inches of rise by 2100;
- 2 • Drier (by 5 percent or more) than historical average precipitation, with a greater  
3 amount of drying in Southern California (with precipitation decreases in some  
4 scenarios exceeding 15 percent);
- 5 • A decrease in cotton, maize, sunflower, and wheat yields from 3 percent to 8  
6 percent by 2050, with rice and tomato yields unchanged, and decreased yields for  
7 all crops except alfalfa by 2100; and
- 8 • A substantial increase in fire risk and estimated burned area increases from 57  
9 percent to 169 percent by 2085.

10 Risks to public health are also summarized in the 2009 Climate Action Team (CAT)  
11 biennial assessment (CAT, 2010). As stated above, climate change is predicted to lead to  
12 increases in the frequency, intensity, and duration of extreme heat events and heat waves  
13 in California. This is likely to increase the risk of mortality and morbidity due to heat-  
14 related illness on the elderly; individuals with chronic conditions such as heart and lung  
15 disease, diabetes, and mental illnesses; infants; the socially or economically  
16 disadvantaged; and those who work outdoors. The expected increase in temperatures and  
17 resulting increases in ultraviolet radiation due to climate change are likely to exacerbate  
18 existing air quality problems unless measures are taken to reduce GHGs as well as air  
19 pollutants and their precursors.

20 A 2008 study (Geophysical Research Letters, 2008), has identified direct links between  
21 increased levels of CO<sub>2</sub> in the atmosphere and increases in human mortality. The study  
22 determined the amounts of ozone and airborne particles that result from temperature  
23 increases in CO<sub>2</sub> emissions. The effects of considering the human impact of increased  
24 CO<sub>2</sub> emissions showed two important effects:

- 25 • Higher temperatures due to CO<sub>2</sub> increased the chemical rate of ozone production  
26 in urban areas; and
- 27 • Increased water vapor due to carbon dioxide-induced higher temperatures  
28 boosted chemical ozone production even more in urban areas.

29 The study further indicated that the effects of carbon dioxide emissions are most  
30 pronounced in areas that already have significant pollution, such as California. Many of  
31 the plans, policies, and regulations identified in the regulations, plans and policies section  
32 of this document are directed at reducing these impacts.

### 33 3.3.2.2 Sea Level Rise

34 With respect to adaptation to climate change effects, the Rand Corporation prepared a  
35 study (Lempert, 2012) of potential sea level rise (SLR) impacts on Port facilities that  
36 focused on four areas at different elevations and their potential exposure to SLR. The  
37 four areas studied are the low side of the container ship terminals, the upper side of the  
38 terminals, Berths 206–209, and the Alameda and Harry Bridges crossing. The study goes  
39 beyond the theoretical SLR inundation scenarios that have been generated (and are  
40 available online<sup>1</sup>) from the upper ranges of SLR in studies conducted by the Pacific  
41 Institute and the California Sea Level Rise Task Force of the Coastal and Ocean Working

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<sup>1</sup> <http://cal-adapt.org/sealevel/>

1 Group of the California Climate Action Team (Co-CAT) in the *State of California Sea*  
2 *Level Rise Interim Guidance Document* (2010).

3 The Rand study takes into account the range of the SLR estimates in the Co-CAT  
4 document (up to 55 inches by 2100) and expands the range by another 12 inches to allow  
5 for uncertainty related to a broad circulation shift in the Pacific Ocean resulting from  
6 climate change later in the 21<sup>st</sup> century. The Rand study assigns probabilities to the SLR  
7 ranges (with an approximately equal distribution of probabilities) and then determines  
8 whether investments should or should not be made to upgrade sea armoring at the four  
9 facility areas. Upgrades to sea armoring means the addition of physical structures  
10 intended to protect infrastructure or shoreline against anticipated sea level rise. The  
11 study concludes by stating that a decision to harden sea armoring at the next decision  
12 point for upgrade (i.e., when a new project is being constructed) should be seriously  
13 considered only for the lower lying Alameda and Harry Bridges crossing area, which is  
14 6.13 feet above mean sea level.

15 The higher elevation areas reviewed in the study include Berths 206–209 (7.62 feet above  
16 MSL), lower terminal (9.20 feet above MSL), and upper terminal (12.14 feet above  
17 MSL). The proposed Project would be located in the lower terminal area.

18 The Rand study also performed a detailed analysis of key variables that could affect the  
19 decision to armor during construction. For the lower terminal area, which is where the  
20 proposed Project would be located, the study indicates that the Port could consider  
21 upgrading costs of approximately one percent of a project's total when the project's life is  
22 greater than 50 years and there is a forecast trend in increased daily storminess due to  
23 climate change (a three percent increase in the daily sea-level anomaly). Currently, there  
24 is no scientific consensus regarding whether daily storminess will increase or decrease in  
25 the 21<sup>st</sup> century for the Southern California region.

26 The conclusions from the Rand study, when applied to the proposed project area,  
27 demonstrate that additional protection from SLR are not warranted at this time given the  
28 current state of scientific understanding of SLR and related climatic variables. As noted  
29 above, the Rand study is consistent with state guidance because it uses the Co-CAT  
30 document for its central range of SLR estimates.

### 31 **3.3.3 GHG Reduction Regulations, Plans and Policies**

32 Climate change has been recognized as a threat to the global climate, economy, and  
33 population. As a result, the climate change regulatory setting - federal, state, and local -  
34 is complex and evolving. This section identifies key legislation, executive orders, and  
35 seminal court cases related to climate change germane to the proposed Project.

#### 36 **3.3.3.1 Federal**

##### 37 **Federal Action on Greenhouse Gas Emissions**

###### 38 ***April 2007 Supreme Court Ruling***

39 In *Massachusetts et al. v. Environmental Protection Agency et al.* 549 U.S. 497, the  
40 U.S. Supreme Court ruled that GHGs were air pollutants within the meaning of the Clean  
41 Air Act and that the act authorizes the EPA to regulate CO<sub>2</sub> emissions from new motor  
42 vehicles, should those emissions endanger the public health or welfare. The Court did

1 not mandate that the EPA enact regulations to reduce GHG emissions but found that the  
2 only instances where the EPA could avoid taking action were if it found that GHGs do  
3 not contribute to climate change or if it offered a “reasonable explanation” for not  
4 determining that GHGs contribute to climate change. On December 7, 2009, the EPA  
5 Administrator signed two distinct findings regarding GHGs under Section 202(a) of the  
6 Clean Air Act.

7 Endangerment Finding: the EPA Administrator found that the current and projected  
8 concentrations of the six key well-mixed GHGs - CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, and SF<sub>6</sub> -  
9 in the atmosphere threaten the public health and welfare of current and future  
10 generations.

11 Cause or Contribute Finding: the EPA Administrator found that the combined emissions  
12 of these well-mixed GHGs from new motor vehicles and new motor vehicle engines  
13 contribute to the GHG pollution that threatens public health and welfare.

14 The findings themselves did not impose any requirements on industry or other entities.  
15 However, this action was a prerequisite to finalizing the EPA’s proposed GHG emissions  
16 standards for light-duty vehicles (EPA, 2009).

17 ***GHG Standards for On-road Vehicles: Corporate Average Fuel Economy***  
18 ***(CAFE) Light Duty Vehicle Standards and GHG Emissions and Fuel Efficiency***  
19 ***Standards for Medium- and Heavy-Duty Engines and Vehicles***

20 First enacted by Congress in 1975 as part of the 1975 Energy Policy Conservation Act in  
21 response to the 1973–1974 oil crises, the purpose of CAFE standards is to reduce energy  
22 consumption by increasing the fuel economy of passenger cars and light-duty trucks. The  
23 CAFE regulation requires each car manufacturer to meet a standard for the sales-  
24 weighted fuel economy for the entire fleet of vehicles sold in the United States in each  
25 model year.

26 In response to a U.S. Presidential Memorandum Regarding Fuel Efficiency Standards  
27 dated May 21, 2010, the EPA and NHTSA are taking coordinated steps to enable the  
28 production of a new generation of clean vehicles, through reduced GHG emissions and  
29 improved fuel efficiency from on-road vehicles and engines. On April 1, 2010, the EPA  
30 and NHTSA issued a Final Rule establishing new federal GHG and fuel economy  
31 standards for model years 2012–2016 passenger cars, light-duty trucks, and medium-duty  
32 passenger vehicles (EPA, 2010). On October 15, 2012, the agencies finalized GHG  
33 standards for model year 2017 through 2025 light-duty vehicles (EPA, 2012).

34 In addition, on September 15, 2011, EPA and NHTSA finalized regulations to reduce  
35 GHG emissions and improve fuel efficiency of medium- and heavy-duty vehicles  
36 (amended June 17, 2013 and August 17, 2013), including large pickup trucks and vans,  
37 semi-trucks, and all types and sizes of work trucks and buses. The regulations  
38 incorporate all on-road vehicles rated at a gross vehicle weight at or above 8,500 pounds,  
39 and the engines that power them. Under the regulations, fuel economy will be improved  
40 and GHG emissions will be reduced in model years 2014 – 2018 (EPA, 2011; EPA,  
41 2013; EPA, 2013b). On August 16, 2016, EPA and NHTSA implemented Phase 2 of the  
42 Heavy-Duty National Program to cover model years 2018 to 2027 for certain trailers and  
43 model years 2021 to 2027 for semi-trucks, large pickup trucks, vans, and all types and  
44 sizes of buses and work trucks.

### 3.3.3.2 State

#### California Legislation

California has enacted climate change laws, many of which set aggressive goals for GHG reductions within the state. The discussion below provides a brief overview of the CARB and Office of Planning and Research documents and of the primary legislation that relates to climate change and may affect the GHG emissions associated with the proposed Project.

##### ***Executive Order S-3-05***

California Executive Order S-03-05 (June 1, 2005) established the following State targets: (1) year 2000 levels by 2010; (2) year 1990 levels by 2020; and (3) 80 percent below 1990 levels by 2050. EO S-3-05 established State targets and directed State legislature to develop legislation to address those targets.

In 2017, the California Supreme Court in *Cleveland National Forest Foundation v. San Diego Association of Governments*, 3 Cal. 5th 497, held that the EIR at issue was not required to include an express analysis of GHG impacts compared to the reduction goals found in Executive Order S-03-05 that had not yet been codified. Although the Court concluded that executive orders do not carry the “force of a legal mandate,” it did stress that its holding was narrow and that planning agencies must ensure their analysis keeps up with “evolving scientific knowledge and state regulatory schemes.”

##### ***Assembly Bill 32, 2008 Scoping Plan and 2014 Scoping Plan Update***

The California Global Warming Solutions Act of 2006, widely known as AB 32, codified the following S-3-05 targets into State law: (1) year 2000 levels by 2010 and (2) year 1990 levels by 2020. AB 32 directed State regulatory agencies to develop rules and regulations to meet the 2020 State targets, required CARB to develop and enforce regulations for the reporting and verification of statewide GHG emissions, and required CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.

In 2008, CARB adopted the AB 32 Scoping Plan, which set forth the framework for facilitating the State’s AB 32 GHG goals. The Scoping Plan’s GHG reduction actions include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 program implementation fee regulation to fund the program.

The Scoping Plan also identified a discrete early action, regulation for port operations. This action resulted in the promulgation of regulation for electrification of ship auxiliary engines while at berth.

In 2014, CARB adopted an update to the 2008 Scoping Plan that built upon the initial Scoping Plan with new strategies to achieve the following AB 32 State target: Year 1990 levels by 2020. The AB 32 Scoping Plan Update highlights the State’s progress toward meeting the 2020 GHG emission reduction goal, identifies funding opportunities to reduce GHG emissions through State planning and low carbon investments, identifies climate change priorities for 5 years, and sets the groundwork to reach long-term goals of EO S-3-05. The Scoping Plan Update also includes specific

1 recommended actions for lead agencies, identifies possible regulatory actions for vehicles  
2 and fuels, and introduces the need for a Sustainable Freight Initiative and the 2014  
3 Sustainable Freight Strategy (technical assessments that identify near-term and 2020  
4 actions for each freight sector).

5 The 2008 Scoping Plan and 2014 Scoping Plan Update require that reductions in GHG  
6 emissions come from virtually all sectors of the economy and be accomplished from a  
7 combination of policies, planning, direct regulations, market approaches, incentives and  
8 voluntary efforts. These efforts target GHG emission reductions from cars and trucks,  
9 electricity production, fuels, and other sources.

#### 10 ***Executive Order B-30-15***

11 In April 2015, EO B-30-15 established an interim, Statewide GHG emissions-reduction  
12 target of 40 percent below 1990 levels by 2030 and directed State legislature to develop  
13 legislation to address that State target. This interim target was established in order to  
14 ensure the State meets the EO S-3-05 target of reducing greenhouse gas emissions to 80  
15 percent below 1990 levels by 2050.

#### 16 ***Senate Bill (SB) 32 and 2017 Scoping Plan***

17 In 2016, SB 32 codified the EO B-30-15 target of 40 percent reduction below 1990 levels  
18 by 2030 and directed State regulatory agencies to develop rules and regulations to meet  
19 the 2030 State target.

20 To facilitate achievement of this goal, CARB developed the 2017 Scoping Plan in  
21 November 2017. The 2017 Scoping Plan builds on the state's existing programs and  
22 integrates efforts to reduce both GHGs and air pollution. Per the 2017 Scoping Plan,  
23 California's future climate strategy will focus on zero- and near-zero emission vehicle  
24 technologies; continued investment in renewables, such as solar roofs, wind, and other  
25 types of distributed generation; greater use of low carbon fuels; integrated land  
26 conservation and development strategies; coordinated efforts to reduce emissions of  
27 short-lived climate pollutants (methane, black carbon, and fluorinated gases); and an  
28 increased focus on integrated land use planning.

#### 29 ***Low Carbon Fuel Standard (2007, 2015)***

30 Under the AB 32 Scoping Plan, ARB identified the Low Carbon Fuel Standard (LCFS)  
31 as an early action measures to reduce California's GHG emissions. The LCFS is  
32 designed to encourage the use of cleaner low-carbon fuels in California, encourage the  
33 production of those fuels, thereby reducing GHG emissions. In September 2015, the  
34 ARB re-adopted the LCFS, to settle issues arising from lawsuits. The LCFS requirement  
35 remains a 10 percent reduction in the carbon intensity of transportation fuels by 2020.

#### 36 ***Renewables Portfolio Standard (2002 - 2015)***

37 In 2002, California established the basic policy framework for the increased use of  
38 renewable energy resources in California, known as the Renewables Portfolio Standard  
39 (RPS). Under the law, publicly-owned utilities were directed to pursue voluntary actions  
40 to increase the use of renewable energy in their portfolios. In 2006, new State policy  
41 heightened the need to increase the use of renewable energy as part of the State's GHG  
42 reduction efforts. In 2011, SB X1-2 revised the RPS target to be 33 percent renewables  
43 by 2020 and applied the standards to all electricity retailers in the state. In October 2015,

1 the Clean Energy and Pollution Reduction Act (SB 350) expanded and increased the  
2 target of the RPS program to 50 percent by the end of 2030 and required California to  
3 double statewide energy efficiency savings in electricity and natural gas end uses by  
4 2030.

5 Although not directly related to the proposed Project, the program highlights the expected  
6 reductions in indirect GHG emissions (i.e., electricity used on site but generated at off  
7 site utilities).

#### 8 **Cap and Trade (2012-2017)**

9 The AB 32 Scoping Plan identified a cap-and-trade program as one of the strategies  
10 California will employ to reduce GHG emissions. Under cap-and-trade, an overall limit  
11 on GHG emissions from capped sectors was established and facilities subject to the cap  
12 are able to trade allowances to emit GHGs. The program began in 2012, with an  
13 enforceable compliance obligation beginning with the 2013 GHG emissions.

14 In 2017, *Association of Irrigated Residents v. Kern County Board of Supervisors*, 17  
15 Cal.App.5th 708, the Court of Appeal held that the volume of a project's estimated GHG  
16 emissions could be decreased to reflect the use of allowances and offset credits under the  
17 state's cap-and-trade program because the cap-and-trade program qualified as a  
18 "regulation[] or requirement[] adopted to implement a statewide . . . plan for the  
19 reduction of mitigation of greenhouse gas emissions" under Guidelines section 15064.4,  
20 subdivision (b)(3). Although not directly related to the proposed Project, the program  
21 highlights the GHG reduction efforts in California.

#### 22 **Advanced Clean Cars Program (2012-2016)**

23 ARB adopted the Advanced Clean Cars (ACC) program in 2012. The program,  
24 developed in coordination with the EPA and NHTSA, combined the control of criteria  
25 pollutants and GHG emissions into a single coordinated set of requirements for car model  
26 years 2015 through 2025. The components of the ACC program are the Low-Emission  
27 Vehicle (LEV) regulations that reduce criteria pollutants and GHG emissions from light-  
28 and medium-duty vehicles, and the Zero-Emission Vehicle (ZEV) regulation, which  
29 requires manufacturers to produce an increasing number of pure ZEVs (i.e., battery  
30 electric and fuel cell electric vehicles), with provisions to also produce plug-in hybrid  
31 electric vehicles (PHEV) in the 2018 through 2025 model years.

#### 32 **Short-Lived Climate Pollutant Reduction Strategy (2014-2017)**

33 Short-lived climate pollutants (SLCPs) include methane, fluorinated gases including  
34 hydrofluorocarbons (HFCs), and black carbon. Their relative potency, when measured in  
35 terms of how they heat the atmosphere is many times greater than that of CO<sub>2</sub>. In 2014,  
36 SB 605 directed CARB to develop a comprehensive SLCP strategy to reduce emissions  
37 of SLCPs. In 2016, SB 1383 directed the ARB to approve and begin implementing the  
38 plan by January 1, 2018, and set statewide 2030 emission reduction targets for methane,  
39 HFCs, and anthropogenic black carbon. The SLCP Reduction Strategy was approved by  
40 the ARB in March 2017 and was integrated into the 2017 Scoping Plan: The Strategy for  
41 Achieving California's 2030 GHG Target.

1                   **Senate Bill 375 (Land Use Planning)**

2                   This Act supports the State's climate action goals to reduce GHG emissions through  
3                   coordinated transportation and land use planning with the goal of more sustainable  
4                   communities. Under the Act, the California Air Resources Board (CARB or Board) sets  
5                   regional targets for GHG emissions reductions from passenger vehicle use that must be  
6                   updated every eight years. In 2010, CARB established these targets for 2020 and 2035  
7                   for each region covered by one of the State's metropolitan planning organizations (MPO).  
8                   CARB has been undergoing the process of updating the SB 375 targets, which will take  
9                   effect in 2018.

10                  Although not directly related to the proposed Project, the program highlights the GHG  
11                  reduction efforts in California.

12                   **Climate Change Adaptation Strategy (2009-2017)**

13                  The Safeguarding California Plan is California's climate change adaptation strategy. In  
14                  2009, California adopted a statewide Climate Adaptation Strategy (CAS) that  
15                  summarizes climate change impacts and recommends adaptation strategies. The  
16                  California Natural Resources Agency (CNRA) and the Climate Action Team (CAT), in  
17                  coordination with other state agencies, updates the Climate Adaptation Strategy. Updates  
18                  augment previously identified strategies in light of advances in climate science and risk  
19                  management options. The CAT also creates a comprehensive Sea Level Rise Assessment  
20                  Report. Guidance regarding adaptation strategies is general in nature and emphasizes  
21                  incorporation of strategies into existing planning policies and processes.

22                   **California Sustainable Freight Action Plan**

23                  The California Sustainable Freight Action Plan was adopted in July 2016. Pursuant to  
24                  EO B-32-15, the plan established targets to improve freight efficiency, transition to zero-  
25                  emission technologies, and make California's freight system more competitive. The  
26                  targets are not mandates but are aspirational measures of progress. Plan measures are  
27                  conceptual and rely on the future development of regulations to implement the strategies.  
28                  Plan strategies include on-dock and near-dock strategies to shift goods movement from  
29                  truck to rail.

30                  Although not directly related to the proposed Project, the program highlights the GHG  
31                  reduction efforts in California.

32                   **Green Building Strategy**

33                  These standards conserve electricity and natural gas and prevent the state from having to  
34                  build more power plant plants. Building Energy Efficiency Standards (Title 24, Part 6)  
35                  for new residential and commercial buildings were originally adopted by the California  
36                  Energy Resources Conservation and Development Commission in June 1977 and most  
37                  recently revised in 2016. Title 24, Part 6 seeks to ensure that building construction,  
38                  system design, and installation achieve energy efficiency. Title 24, Part 6 establishes a  
39                  minimum level of building energy efficiency.

40                  The Green Building Code Standards (Title 24, Part 11) were adopted by the California  
41                  Building Standards Commission in 2008, and most recently revised in 2016. Title 24,  
42                  Part 11 seeks to enhance the design and construction of buildings by encouraging  
43                  sustainable construction practices in planning/design, energy efficiency, water efficiency  
44                  and conservation, material conservation and resource efficiency, and environmental

1 quality. Title 24, Part 11 establishes mandatory minimum green building standards to the  
2 planning, design, operation, construction, use and occupancy of newly constructed,  
3 residential and nonresidential buildings.

4 Although not directly related to the proposed Project, the program highlights the GHG  
5 reduction efforts in California.

### 6 **Commercial Recycling Standards (2012)**

7 Mandatory Commercial Recycling was one of the measures adopted in the AB 32  
8 Scoping Plan and codified in 2012. The Measure focuses on increased commercial waste  
9 diversion as a method to reduce GHG emissions. It is designed to achieve a reduction in  
10 GHG emissions of 5 million metric tons of CO<sub>2</sub>-e. The regulation requires a business  
11 that generates 4 cubic yards or more of commercial solid waste per week to arrange for  
12 recycling services.

### 13 **Senate Bill 97 (CEQA Guidelines)**

14 SB 97 required that the California Natural Resources Agency coordinate on the  
15 preparation of amendments to the CEQA Guidelines regarding feasible mitigation of  
16 GHG emissions or the effects of GHG emissions. Pursuant to SB 97, the agency adopted  
17 CEQA Guidelines amendments on December 30, 2009, and transmitted the Adopted  
18 Amendments and the entire rulemaking file to the Office of Administrative Law on  
19 December 31, 2009. The amendments were approved by the Office of Administrative  
20 Law on February 16, 2010, and became effective on March 18, 2010.

21 With respect to the significance assessment, CEQA Guidelines Section 15064.4,  
22 subdivision (b), indicates:

23 (b) A lead agency should consider the following factors, among others,  
24 when assessing the significance of impacts from GHG emissions on  
25 the environment:

26 (1) The extent to which the project may increase or reduce GHG  
27 emissions as compared to the existing environmental setting;

28 (2) Whether the project emissions exceed a threshold of significance  
29 that the lead agency determines applies to the project;

30 (3) The extent to which the project complies with regulations or  
31 requirements adopted to implement a statewide, regional, or  
32 local plan for the reduction or mitigation of GHG emissions.  
33 Such requirements must be adopted by the relevant public  
34 agency through a public review process and must reduce or  
35 mitigate the project's incremental contribution of GHG  
36 emissions. If there is substantial evidence that the possible  
37 effects of a particular project are still cumulatively considerable  
38 notwithstanding compliance with the adopted regulations or  
39 requirements, an EIR must be prepared for the project.

40 The amendments also provide that lead agencies should consider all feasible means of  
41 mitigating GHG emissions that substantially reduce energy consumption or GHG

1 emissions. These potential mitigation measures may include carbon sequestration. If  
2 offsite or carbon offset mitigation measure are proposed, they must be part of reasonable  
3 plan of mitigation that the agency itself is committed to implementing. No threshold of  
4 significance or any specific mitigation measures are indicated.

5 Among other things, the California Natural Resources Agency noted in its public notice  
6 for these changes that impacts of GHG emissions should be considered in the context of a  
7 cumulative impact, rather than a project impact. The public notice states:

8 While the Proposed Amendments do not foreclose the possibility that a single project  
9 may result in greenhouse gas emissions with a direct impact on the environment, the  
10 evidence before [CNRA] indicates that in most cases, the impact will be cumulative.  
11 Therefore, the Proposed Amendments emphasize that the analysis of greenhouse gas  
12 emissions should center on whether a project's incremental contribution of greenhouse  
13 gas emissions is cumulatively considerable.

### 14 **3.3.3.3 Local**

#### 15 **South Coast Air Quality Management District**

##### 16 **SCAQMD GHG CEQA Thresholds**

17 On December 5, 2008, the SCAQMD Governing Board adopted its staff proposal for an  
18 interim CEQA GHG significance threshold for projects where the SCAQMD is the lead  
19 agency. To date, the board has adopted a threshold of 10,000 mty CO<sub>2</sub>e emissions per  
20 year to industrial projects, and the threshold has been a part of the SCAQMD Air Quality  
21 Thresholds since 2011 (SCAQMD, 2011).

#### 22 **City of Los Angeles Policies**

##### 23 **Green LA**

24 The City of Los Angeles released its climate action plan, Green LA: An Action Plan to  
25 Lead the Nation in Fighting Global Warming, in May 2007 (City of Los Angeles, 2007).  
26 The Green LA plan is a voluntary program that sets a goal of reducing the City's GHG  
27 emissions to 35 percent below 1990 level by 2030.

28 ClimateLA is the implementation framework that contains the details of the more than 50  
29 action items that are included in Green LA. The majority of the actions described in the  
30 Green LA Plan are not project-specific and include City-wide actions. Some of the  
31 measures the City of Los Angeles will take to achieve the 35 percent reduction goal  
32 include the following:

- 33 • Increasing the amount of renewable energy provided by LADWP;
- 34 • Improving the energy efficiency of all City departments and City-owned  
35 buildings;
- 36 • Converting City fleet vehicles, refuse collection trucks, street sweepers, and  
37 buses to alternative fuel vehicles;
- 38 • Providing incentives and assistance to existing LADWP customers in becoming  
39 more energy efficient;

- 1 • Changing transportation and land use patterns to reduce dependence on  
2 automobiles;
- 3 • Decreasing per capita water use;
- 4 • “Greening” the Port of Los Angeles and the airports operated by the City  
5 (including Los Angeles International Airport); and
- 6 • Promoting expansion of the “green economy” throughout the City.

7 The LA Green Plan calls for the following Port-specific actions:

- 8 • Heavy-duty vehicles: By the end of 2011, all trucks calling at the ports will meet  
9 or exceed the EPA’s 2007 heavy-duty vehicle on-road emissions standards for  
10 particulate matter.
- 11 • Cargo-handling equipment: All yard tractors will meet at a minimum the EPA  
12 2007 on-road or Tier IV engine emission standards.
- 13 • Railroad locomotives: For Pacific Harbor Line switch engines, Tier II engines  
14 and emulsified or other equivalently clean alternative diesel fuels available will  
15 be used. Diesel-powered Class 1 locomotives entering port facilities will be 90  
16 percent controlled for particulate matter and NOx.
- 17 • A strategic plan for the Port will be completed and will include sustainable and  
18 green growth options.
- 19 • An economic development plan for the Port will be completed and will identify  
20 opportunities to link the Port’s investment in green growth to new economic  
21 opportunities in the green sector.

22 The specific measures for developing the Port-specific actions are included in the San  
23 Pedro Bay Ports Clean Air Action Plan discussed below.

### 24 ***The Sustainable City pLAN (pLAN)***

25 In April 2015, the City of Los Angeles developed the Sustainable City pLAN (pLAN) as a  
26 roadmap through 2035. The pLAN contains strategies to address current and future  
27 climate change impacts and reduce air quality emissions. The pLAN sets aspirations for  
28 14 target areas. Of these, the following are related to port activities: energy-efficient  
29 buildings, carbon and climate leadership, mobility and transit. In particular, the pLAN  
30 projects the increase of port-related goods movement trips that use zero-emissions  
31 technology to 15 percent by 2025 and to 25 percent by 2035 (City of Los Angeles, 2015).

## 32 **Port of Los Angeles Policies**

### 33 ***Green Building Policy (2007)***

34 In August 2007, the Board of Harbor Commissioners adopted the Green Building Policy  
35 requiring Leadership in Energy and Environmental Design (LEED) Gold Rating as the  
36 minimum standard for new construction of most buildings of at least 7,500 square feet as  
37 well as the incorporation of solar power and best available technology for energy and  
38 water efficiency for all new Port buildings.

**Port Climate Action Plan (2007)**

The 2007 Green LA Plan directed the Port to develop an individual Climate Action Plan, consistent with the goals of Green LA, to explore opportunities to reduce GHG emissions from municipal operations (such as Port buildings and Port workforce operations). The Climate Action Plan outlines specific steps that LAHD has taken and will take on global climate change. These steps include specific actions for energy audits, green building policies, onsite photovoltaic solar energy, green energy procurement, tree planting, water conservation, alternative fuel vehicles, increased recycling, and green procurement. The Port Climate Action Plan also outlines San Pedro Bay Ports Clean Air Action Plan measures that have significant GHG reduction co-benefits, such as Vessel Speed Reduction (VSR) and Alternative Marine Power (AMP). GHG reduction needs from Port's tenant activities are recognized in the Port Climate Action Plan, but are deferred to the CAAP, which addresses tenant operations.

**Port of Los Angeles Actions to Reduce Greenhouse Gas Emissions by 2050 (2014)**

In September 2014, LAHD prepared Actions to Reduce Greenhouse Gas Emissions by 2050 and submitted the document to the City of Los Angeles (LAHD, 2014). The document presents a summary of the actions currently being undertaken by LAHD to reduce GHG emissions associated with LAHD operations, as well as its leadership role to help the maritime industry reduce its emissions occurring in the Port area. The document shows that quantifiable progress has been made in reducing GHG emissions reductions from 1990 to 2013 and outlines actions/strategies that are either being implemented or evaluated for possible implementation, in an effort to continue to reduce GHG emissions. While not a legal mandate, the plan establishes a Port-wide goal of 35 percent reduction by 2035 and 80 percent reduction by 2050.

**San Pedro Bay Ports Clean Air Action Plan (2005-2017)**

The Ports of Los Angeles and Long Beach, with the participation and cooperation of EPA, CARB, and SCAQMD staff, developed the San Pedro Bay Ports CAAP in 2005, a planning and policy document that sets goals and implementation strategies to reduce air emissions and health risks associated with port operations while allowing port development to continue (POLA and POLB, 2006; 2010; 2017). Each individual CAAP measure is a proposed strategy for achieving these emissions reductions goals. CAAP measures are discussed in detail in Section 3.1, Air Quality and Meteorology.

The CAAP was updated in 2010 and most recently in 2017. The CAAP 2017 Update aligns with the California Sustainable Freight Action Plan, supports the zero-emissions and freight efficiency targets set by the state and other agencies, and contains a new focus on GHG reductions with a 2050 emission-reduction target. The CAAP 2017 Emission Reduction Targets include:

- Reduce population-weighted residential cancer risk of Port-related DPM emissions by 85 percent by 2020;
- Reduce port-related emissions by 59 percent for NO<sub>x</sub>, 93 percent for SO<sub>x</sub>, and 77 percent for DPM by 2023;
- Reduce GHGs from port-related sources to 40 percent below 1990 levels by 2030; and

- 1 • Reduce GHGs from port-related sources to 80 percent below 1990 levels by  
2 2050.

3 The 2017 CAAP Update strategies may result in GHG reductions as older technologies  
4 are replaced with newer, fuel-efficient technologies.

### 5 ***LAHD Sustainable Construction Guidelines (2008)***

6 In February 2008, the LAHD Board of Harbor Commissioners adopted the Los Angeles  
7 Harbor Department Sustainable Construction Guidelines for Reducing Air Emissions  
8 (LAHD Construction Guidelines) (LAHD, 2008). The LAHD Construction Guidelines  
9 reinforce and require sustainability measures during performance of the contracts,  
10 balancing the need to protect the environment, be socially responsible, and provide for  
11 the economic development of the Port. The LAHD Construction Guidelines, Specific  
12 Applicable Measures, address a variety of emission sources that operate at the Port during  
13 construction, such as ships and barges used to deliver construction-related materials,  
14 harbor craft, dredging equipment, haul and delivery trucks used during construction, and  
15 off-road construction equipment. In addition, the LAHD Construction Guidelines include  
16 BMPs, based largely on CARB-verified BACT, designed to reduce air emissions from  
17 construction sources.

### 18 ***Additional Rules, Regulations and Policies***

19 In addition to the above rules, regulations and policies that primarily focus on GHG  
20 emission reductions, rules, regulations and policies, discussed in Section 3.1, Air Quality  
21 and Methodology, that reduce fuel consumption, would have the co-benefit of reducing  
22 GHG emissions.

## 23 **3.3.4 Impacts and Mitigation Measures**

24 This section presents a discussion of the potential GHG impacts associated with the  
25 construction and operation of the proposed Project. Mitigation measures are provided,  
26 where feasible, for impacts found to be significant.

### 27 **3.3.4.1 Methodology**

28 GHG emissions were estimated for the CEQA baseline and construction and operation of  
29 the proposed Project. In addition, indirect GHG emissions from electricity use during  
30 construction of the proposed Project were estimated. Indirect GHG emissions from  
31 Electricity consumption are assumed to remain constant over the next 30 years. No new  
32 or additional equipment requiring electricity (i.e., lighting, expanded backlands, etc.) is  
33 expected.

34 Per the LAHD Sustainable Construction Guidelines, BMPs would be implemented on all  
35 construction projects to reduce air emissions. BMPs are not quantified for CEQA  
36 purposes (i.e., no air quality ‘credit’ was given for this measure).

37 The LAHD shall determine the BMPs once the contractor identifies and secures a final  
38 equipment list and project scope. The LAHD shall then meet with the contractor to  
39 identify potential BMPs and work with the contractor to include such measures in the  
40 contract. BMPs shall be based on CARB-Verified BACT and may include changes to  
41 construction practices and design to reduce or eliminate environmental impacts.

1 The specific approaches to calculating emissions for the various emission sources during  
2 construction and operation of the proposed Project are discussed below. Construction  
3 and operational emission calculations are presented in Appendix B1.

4 Sources contributing to GHG emissions during proposed Project construction consist of:

- 5 • harbor craft;
- 6 • off-road construction equipment;
- 7 • on-road construction vehicles; and
- 8 • worker vehicles.

9 Sources contributing to GHG emissions during proposed Project operation consist of:

- 10 • tanker ships (transit, anchoring, and hoteling);
- 11 • integrated barges (transit, anchoring and hoteling);
- 12 • tugboats assisting ships during harbor transit, turning, and docking; and
- 13 • product loading and unloading.

14 The activity data (ship calls, truck trips, etc.) used in the GHG emission calculations for  
15 baseline, construction, and operation are the same activity data used and described in  
16 Section 3.1, Air Quality and Meteorology; therefore, the activity data descriptions are not  
17 repeated here. The equipment utilization and scheduling data needed to calculate  
18 emissions for the proposed construction and operational activities were obtained from the  
19 proposed project applicant and LAHD Engineering staff and are included in Appendix  
20 B1.

21 GHG emission factors and emissions associated with the CEQA baseline and proposed  
22 Project are presented in detail in Appendix B1 and summarized as follows:

- 23 • CO<sub>2</sub>e emissions from on-road and off-road construction equipment were based  
24 on emission factors derived from EMFAC2014 and OFFROAD2007.
- 25 • CO<sub>2</sub>e emissions from harbor craft associated with construction activities were  
26 based on emission factors derived from EPA emission standards for marine  
27 engines.
- 28 • Tanker, integrated barge, and harbor craft engine emissions were based on  
29 emission factors identified in the Port 2014 Emissions Inventory (LAHD, 2015).

30 In addition to evaluating the CO<sub>2</sub>e emissions from the proposed Project, the potential  
31 impact of SLR resulting from global climate change on the proposed Project was also  
32 considered. The methodology focused on a review of currently available documentation  
33 for the Los Angeles coastline (Pacific Institute, 2009; Lempert, 2012). Lempert (2012)  
34 used the Port as a case study and considers a broader range of potential SLR scenarios  
35 (up to 30 centimeters higher) than the two previous studies.

### 3.3.4.2 Geographic Boundaries

For the purpose of assessing GHG impacts under CEQA, proposed project CO<sub>2</sub>e emissions from ships were calculated to the California border. Emissions from proposed Project-related ships were calculated as follows:

- Tanker ship emissions were calculated along the northern 170 nm shipping route. The analysis conservatively assumed that all tanker ships would follow this “northern” route because it represents the longest distance that ships would travel to and from the Port while within CARB’s California in-state boundary.

### 3.3.4.3 CEQA Baseline

Section 15125 of the CEQA Guidelines requires EIRs to include a description of the physical environmental conditions in the vicinity of a project that exist at the time of the NOP. These environmental conditions normally would constitute the baseline physical conditions by which the CEQA lead agency determines if an impact is significant. The NOP for the proposed Project was published in July 2015. The CEQA baseline represents the setting at a fixed point in time. For purposes of this Draft EIR, the CEQA baseline takes into account the throughput for the past five years (2011-2015) in order to provide a representative characterization of average activity levels prior to release of the NOP.

Future conditions that could be affected by rules and regulations implemented over time were not considered in this baseline. The methodology used to quantify baseline emissions is presented in Section 3.3.4.1, Methodology.

The CEQA baseline conditions are also described in Section 2.7.1 and summarized in Table 2-1. Table 3.3-1 presents the annual baseline GHG emissions in mty based on the baseline activity presented in Chapter 2.

**Table 3.3-1: Annual Operational GHG Emissions—CEQA Baseline (2011-2015 avg) (mty)**

Source Category	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e <sup>1</sup>
Ships—transit and anchoring	8,471	0.133	397	8,580
Ships—hoteling	2,506	0.014	171	2,552
Tugs	289	0.003	12	293
Loading	-	-	-	-
Baseline Total	<b>11,266</b>	<b>0.150</b>	<b>0.580</b>	<b>11,424</b>

### 3.3.4.4 Thresholds of Significance

#### CEQA Significance Thresholds

State CEQA Guidelines Section 15064.4(b) sets forth the factors that should be considered by a lead agency when assessing the significance of impacts from GHG emissions on the environment. These factors are:

- 1           • the extent to which a project may increase or reduce GHG emissions compared  
2           with the existing environmental setting;
- 3           • whether project emissions exceed a threshold of significance that the lead agency  
4           determines applicable to a project; and
- 5           • the extent to which a project complies with regulations or requirements adopted  
6           to implement a statewide, regional, or local plan for the reduction or mitigation  
7           of GHG emissions. Such requirements must be adopted by the relevant public  
8           agency through a public review process and must reduce or mitigate the project's  
9           incremental contribution of greenhouse gas emissions.

10           The guidelines do not specify significance thresholds and allow the lead agencies  
11           discretion in how to address and evaluate significance based on these criteria.

12           To provide guidance to local lead agencies regarding determining significance for GHG  
13           emissions in CEQA documents, SCAQMD convened the GHG CEQA Significance  
14           Threshold Working Group. Members of the working group included government  
15           agencies that implement CEQA and representatives from various stakeholder groups that  
16           provide input to SCAQMD staff members regarding developing the GHG CEQA  
17           significance thresholds.

18           On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal  
19           regarding an interim GHG significance threshold for projects where SCAQMD is lead  
20           agency. For industrial projects, a significance threshold of 10,000 mty of CO<sub>2</sub>e emissions  
21           per year was established. Construction GHG emissions, amortized over project life, are  
22           required to be included in a project's annual GHG emissions totals (SCAQMD, 2010).

23           LAHD has determined the SCAQMD-adopted 10,000 mty CO<sub>2</sub>e threshold to be suitable  
24           for LAHD projects for the following reasons:

- 25           • In April 2008, the SCAQMD convened a GHG CEQA Significance Threshold  
26           Working Group. Members of the working group include government agencies  
27           implementing CEQA representatives from various stakeholder groups that  
28           provided input to SCAQMD staff on developing GHG CEQA significance  
29           thresholds.
- 30           • The SCAQMD industrial source threshold is appropriate for projects with future  
31           operations continuing as far out as 2050. The SCAQMD threshold development  
32           methodology used the EO S-3-05 emission reduction targets as the basis in  
33           developing the threshold (SCAQMD, 2008), with the AB 32 2020 reduction  
34           requirements incorporated as a subset of EO S-3-05 (SCAQMD, 2016b). EO S-3-  
35           05 sets an emission reduction target of 80 percent below 1990 levels by 2050.  
36           AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020  
37           (SCAQMD, 2016b). AB 32 has the goal of achieving 1990 GHG levels by 2020.
- 38           • The SCAQMD industrial source threshold is appropriate for projects with both  
39           stationary and mobile sources, both of which are typical components of LAHD  
40           projects. CAPCOA guidance considers industrial projects to include substantial  
41           GHG emissions associated with mobile sources (CAPCOA, 2008)<sup>2</sup>. SCAQMD,

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2

1 on industrial projects for which it is the lead agency, uses the 10,000 mty  
2 threshold to determine CEQA significance by combining a project's stationary  
3 source and mobile source emissions. Although the threshold was originally  
4 developed for stationary sources, SCAQMD staff views the threshold as  
5 conservative for projects with both stationary and mobile sources because it is  
6 applied to a larger set of emissions and therefore captures a greater percentage of  
7 projects than would be captured if the threshold was only used for stationary  
8 sources (SCAQMD, 2016b). For example, in one of its recent EIRs, the  
9 SCAQMD applied the 10,000 mty threshold to a refinery project where the  
10 mobile source emissions would increase and the stationary source emissions  
11 (combined direct and indirect) would decrease relative to baseline. The mobile  
12 source emissions included construction equipment, on-road vehicles, and on- and  
13 off-site rail transport. Moreover, in the same EIR, the SCAQMD also applied the  
14 10,000 mty threshold to its list of related cumulative projects, two of which were  
15 LAHD projects (SCIG and ILWU Local 13 Dispatch Hall) with dominant mobile  
16 source emissions (SCAQMD, 2016). The SCAQMD also specifically approved  
17 the use of the 10,000 mty threshold on another current Port CEQA project  
18 dominated by mobile sources (Berths 97-109 [China Shipping] Container  
19 Terminal Project Supplemental Environmental Impact Report) (SCAQMD,  
20 2015).

- 21 • The SCAQMD industrial source threshold is appropriate for projects with  
22 sources that use primarily diesel fuel. Although most of the sources that were  
23 considered by the SCAQMD in the development of the 10,000 mty threshold are  
24 natural gas-fueled (SCAQMD, 2008), both natural gas and diesel combustion  
25 produce CO<sub>2</sub> as the dominant GHG (TCR, 2016). Furthermore, the conversion  
26 of all GHG species into a CO<sub>2</sub>e ensures that the GHG emissions from any  
27 source, regardless of fuel type, can be evaluated equitably.
  
- 28 • The SCAQMD industrial source threshold is conservative for LAHD projects.  
29 The 10,000 mty threshold is intended to achieve a 90 percent emission capture  
30 rate for permitted industrial facilities subject to the SCAQMD's Annual Emission  
31 Reporting (AER) program. LAHD projects subject to CEQA review usually far  
32 exceed this threshold because of their large size and large number of mobile  
33 sources such as ocean-going vessels, drayage trucks, trains, and cargo handling  
34 equipment.

35 After considering the CEQA Guidelines and LAHD-specific climate change impact  
36 issues, LAHD has set the following threshold for use in this EIR to determine the  
37 significance of proposed project-related GHG impacts. The proposed Project would  
38 create a significant GHG impact if it:

39 **GHG-1:** Generates GHG emissions that, either directly or indirectly, exceed the  
40 SCAQMD 10,000 mty CO<sub>2</sub>e threshold.

41 Impacts under GHG-1 are determined by comparing the combined amortized  
42 construction and future operational emissions with the baseline scenario. Total  
43 construction emissions are amortized over the life of the proposed Project and included in  
44 the CEQA impact determination.

In addition, the LAHD has considered for informational purposes only, whether the proposed Project activities, features, mitigations and lease measures comply with federal, state or local plans, policies or regulations adopted for the purpose of reducing GHG emissions as set forth below:

Finally, State CEQA Guidelines Section 15126.2(a) identifies the need to evaluate potential impacts of locating development in areas that are vulnerable to climate change effects. The EIR “should evaluate any potentially significant impacts of locating development in other areas susceptible to hazardous conditions (e.g., floodplains, coastlines, wildfire risk areas).” Although no significance thresholds are defined for evaluating the potential impacts of locating development in areas that are vulnerable to climate change effects, the analysis addresses this evaluation qualitatively.

### 3.3.4.5 Impact Determination

#### **Impact GHG-1: The proposed Project would generate GHG emissions, either directly or indirectly, that would exceed the SCAQMD 10,000 mty CO<sub>2e</sub> threshold.**

Table 3.3-2 presents amortized annual GHG emissions associated with construction of the proposed Project. Construction emissions were determined by adding direct and indirect GHG emissions associated with all construction elements and amortizing over the life of the proposed Project (30 years). Table 3.3-3 shows amortized construction, annual GHG emissions associated with operational activities, and significance determinations.

**Table 3.3-2: Construction GHG Emissions without Mitigation – Proposed Project (mty)**

Source Category	CO <sub>2</sub> (mty)	CH <sub>4</sub> (mty)	N <sub>2</sub> O (mty)	CO <sub>2e</sub> (mty)
<b>Construction Year 1</b>				
Off-road Construction Equipment Exhaust	154	0	0	155
Marine Source Exhaust	39	0	0	39
On-road Construction Vehicles	61	0	0	62
Total Construction Year 1	<b>253</b>	<b>0</b>	<b>0</b>	<b>256</b>
<b>Construction Year 2</b>				
Off-road Construction Equipment Exhaust	393	0	0	397
Marine Source Exhaust	464	0	0	470
On-road Construction Vehicles	294	0	0	296
Total Construction Year 2	<b>1,151</b>	<b>0</b>	<b>0</b>	<b>1,163</b>

<b>Source Category</b>	<b>CO2 (mty)</b>	<b>CH4 (mty)</b>	<b>N2O (mty)</b>	<b>CO2e (mty)</b>
<b>Construction Year 3</b>				
Off-road Construction Equipment Exhaust	303	0	0	306
Marine Source Exhaust	284	0	0	288
On-road Construction Vehicles	155	0	0	156
Total Construction Year 3	<b>742</b>	<b>0</b>	<b>0</b>	<b>750</b>
<b>Construction Year 4</b>				
Off-road Construction Equipment Exhaust	211	0	0	213
Marine Source Exhaust	219	0	0	222
On-road Construction Vehicles	161	0	0	162
Total Construction Year 4	<b>592</b>	<b>0</b>	<b>0</b>	<b>598</b>
<b>Construction Year 5</b>				
Off-road Construction Equipment Exhaust	83	0	0	84
Marine Source Exhaust	124	0	0	126
On-road Construction Vehicles	26	0	0	27
Total Construction Year 5	<b>233</b>	<b>0</b>	<b>0</b>	<b>236</b>
<b>Construction Year 6</b>				
Off-road Construction Equipment Exhaust	40	0	0	41
Marine Source Exhaust	0	0	0	0
On-road Construction Vehicles	10	0	0	10
Total Construction Year 6	50	0	0	51
<b>Amortized Construction</b>				<b>102</b>

Notes: Emissions might not add precisely because of rounding. The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

A value of "0" indicates a number smaller than 1. An entry of "-" indicates inapplicability.

1  
2**Table 3.3-3: Construction and Operational GHG Emissions without Mitigation – Proposed Project (mty)**

Source Category	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
<b>Amortized Construction</b>				<b>102</b>
<b>Year 2019</b>				
Ships - Transit and Anchoring	9,103	0.143	0.426	9,220
Ships – Hoteling	2,669	0.015	0.182	2,718
Product Loading	601	0.001	0.011	604
Tugboats	310	0.003	0.013	314
Total Operational Year 2019	12,684	0.162	0.632	12,856
Amortized Construction and Operations Year 2019				<b>12,958</b>
<b>2019 CEQA Impacts</b>				
CEQA Baseline Emissions				11,424
Proposed Project Minus CEQA Baseline				1,534
Significance Threshold				10,000
Significant?				<b>No</b>
<b>Year 2031</b>				
Ships - Transit and Anchoring	11,780	0.188	0.568	11,935
Ships – Hoteling	5,361	0.026	0.377	5,462
Product Loading	715	0.001	0.011	718
Tugboats	491	0.003	0.023	497
Total Operations Year 2031	18,347	0.218	0.980	18,612
Amortized Construction and Operations Year 2031				<b>18,714</b>
<b>2031 CEQA Impacts</b>				
CEQA Baseline Emissions				11,424
Proposed Project Minus CEQA Baseline				7,290
Significance Threshold				10,000
Significant?				<b>No</b>
<b>Year – 2048</b>				
Ships Transit and Anchoring	16,571	0.264	0.799	16,790
Ships Hoteling	7,542	0.037	0.531	7,683
Product Loading	930	0.001	0.011	933
Tugboats	691	0.005	0.033	700
Total Operations Year 2048	25,734	0.307	1.374	26,106
Amortized Construction and Operations Year 2048				<b>26,208</b>
<b>2048 CEQA Impacts</b>				
CEQA Baseline Emissions				11,424
Proposed Project Minus CEQA Baseline				14,784

Source Category	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
Significance Threshold				10,000
Significant?				Yes

## Impact Determination

Table 3.3-3 shows that the proposed Project's GHG emissions minus the CEQA baseline would not exceed the GHG threshold of 10,000 mty in any of the study years, except for the final year (2048).

The proposed Project is expected to exceed the 10,000 mty threshold at 139 annual vessel calls. Emissions for all source categories would increase over the life of the proposed Project because of terminal throughput increase. Overall tank vessel emissions would increase because of terminal throughput increase. Proposed Project GHG emissions would be significant prior to mitigation.

## Mitigation Measures

The following mitigation measure MM AQ-5, applied to the air quality impacts in Section 3.1, would reduce fossil fuel use and, as such, would have the added benefit of reducing GHG emissions. The other air quality mitigation measures in Section 3.1 would reduce criteria pollutants and DPM, but are not considered to have a substantial impact on GHG emissions.

**MM AQ-5: Vessel Speed Reduction Program (VSRP).** 95 percent of vessels calling at the Shell Marine Oil Terminal will be required to comply with the expanded VSRP at 12 knots between 40 nautical miles (nm) from Point Fermin and the Precautionary Area.

The following lease measures would also potentially reduce future emissions. Lease measure LM AQ-1 was not quantified in the analysis because the future technologies that may be implemented through the measure have not yet been identified or proven feasible. In addition, LM GHG-1 was not quantified, or taken credit for, because it represents a financial fund for future GHG-reducing projects that are not known at this time; therefore, reductions would be speculative.

**LM AQ-1: Periodic Review of New Technology and Regulations.** LAHD will require the tenant to review any LAHD-identified or other new emissions-reduction technology, determine whether the technology is feasible, and report to LAHD. Such technology feasibility reviews will take place at the time of LAHD's consideration of any lease amendment or facility modification for the proposed project site. If the technology is determined by LAHD to be feasible in terms of cost and technical and operational feasibility, the tenant will work with LAHD to implement such technology.

Potential technologies that may further reduce emissions and/or result in cost-savings benefits for the tenant may be identified through future work on the Clean Air Action Plan (CAAP). Over the course of the lease, the tenant and LAHD will work together to identify potential new technology. Such technology will be studied for feasibility, in terms of cost, technical and operational feasibility,

1 and emissions reduction benefits. As partial consideration for the  
 2 lease amendment, the tenant will implement not less frequently than  
 3 once every five years following the effective date of the permit, new  
 4 air quality technological advancements, subject to mutual agreement  
 5 on operational feasibility and cost sharing, which will not be  
 6 unreasonably withheld. The effectiveness of this measure depends on  
 7 the advancement of new technologies and the outcome of  
 8 commercial availability, future feasibility or pilot studies.

9 **LM GHG-1: GHG Credit Fund:** SCAQMD has established a CEQA threshold  
 10 for greenhouse gas emissions (GHGs) of 10,000 metric tons (MT)  
 11 per year. The project would exceed this level in year 27 of their 30-  
 12 year lease by approximately 3,500 MT per year. This is based on the  
 13 assumption that both berths will be in operation.

14 The Los Angeles Harbor Department (LAHD) shall establish a GHG  
 15 Mitigation Fund (“Fund”), which may be accomplished through a  
 16 Memorandum of Understanding with the California Air Resources  
 17 Board or another appropriate entity, to mitigate project GHG impacts  
 18 to the maximum extent feasible. The Fund shall be used for GHG-  
 19 reducing projects and programs on Port of Los Angeles property.

20 Upon completion of the second wharf/berth at the Shell Marine Oil  
 21 facility, the Tenant shall purchase GHG credits from the LAHD  
 22 GHG Mitigation Fund to mitigate 3,500 MT at the then existing  
 23 market rate. Tenant’s Fund contribution shall not exceed one percent  
 24 of the average of the previous five years’ rents paid by the Tenant to  
 25 the LAHD.

26 If LAHD is unable to establish the fund within a reasonable period of  
 27 time, the Tenant shall instead purchase credits from an approved  
 28 GHG offset registry in the same amount.

29 LAHD has determined that this is the maximum amount feasible for the tenant to  
 30 pay based on the economics of the project.

### 31 ***Residual Impacts***

32 Table 3.3-4 presents GHG emissions associated with construction emissions.  
 33 Table 3.3-5 shows that amortized construction and annual operational emissions  
 34 would exceed the GHG-1 threshold. Impacts would be reduced but would  
 35 remain significant and unavoidable.

36 **Table 3.3-4: Construction GHG Emissions with Mitigation – Proposed**  
 37 **Project (mty)**  
 38

Source Category	CO2 (mty)	CH4 (mty)	N2O (mty)	CO2e (mty)
<b>Construction Year 1</b>				
Off-road Construction Equipment Exhaust	154	0	0	155
Marine Source Exhaust	39	0	0	39
On-road Construction Vehicles	61	0	0	62

<b>Total Construction Year 1</b>	<b>253</b>	<b>0</b>	<b>0</b>	<b>256</b>
<b>Construction Year 2</b>				
Off-road Construction Equipment Exhaust	393	0	0	397
Marine Source Exhaust	464	0	0	470
On-road Construction Vehicles	286	0	0	288
<b>Total Construction Year 2</b>	<b>1,143</b>	<b>0</b>	<b>0</b>	<b>1,155</b>
<b>Construction Year 3</b>				
Off-road Construction Equipment Exhaust	303	0	0	306
Marine Source Exhaust	284	0	0	288
On-road Construction Vehicles	155	0	0	156
<b>Total Construction Year 3</b>	<b>742</b>	<b>0</b>	<b>0</b>	<b>750</b>
<b>Construction Year 4</b>				
Off-road Construction Equipment Exhaust	211	0	0	213
Marine Source Exhaust	219	0	0	222
On-road Construction Vehicles	161	0	0	162
<b>Total Construction Year 4</b>	<b>592</b>	<b>0</b>	<b>0</b>	<b>598</b>
<b>Construction Year 5</b>				
Off-road Construction Equipment Exhaust	83	0	0	84
Marine Source Exhaust	124	0	0	126
On-road Construction Vehicles	26	0	0	27
<b>Total Construction Year 5</b>	<b>233</b>	<b>0</b>	<b>0</b>	<b>237</b>
<b>Construction Year 6</b>				
Off-road Construction Equipment Exhaust	40	0	0	41
Marine Source Exhaust	0	0	0	0
On-road Construction Vehicles	10	0	0	10
<b>Total Construction Year 6</b>	<b>50</b>	<b>0</b>	<b>0</b>	<b>51</b>
<b>Amortized Construction</b>				<b>102</b>

## Notes:

Emissions might not add precisely because of rounding. The emission estimates presented in this table were calculated using the latest available data, assumptions, and emission factors at the time this document was prepared. Future studies might use updated data, assumptions, and emission factors that are not currently available.

A value of "0" indicates a number smaller than 1. An entry of "-" indicates inapplicability.

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1  
2**Table 3.3-5: Construction and Operational GHG Emissions with Mitigation – Proposed Project (mty)**

Source Category	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
<b>Amortized Construction</b>				<b>102</b>
<b>Year 2019</b>				
Ships - Transit and Anchoring	9,098	0.143	0.426	9,214
Ships – Hoteling	2,669	0.015	0.182	2,718
Product Loading	601	0.001	0.011	604
Tugboats	310	0.003	0.013	314
Total Operational Year 2019	12,679	0.162	0.632	12,851
Amortized Construction and Operations Year 2019				<b>12,953</b>
<b>2019 CEQA Impacts</b>				
CEQA Baseline Emissions				11,424
Proposed Project Minus CEQA Baseline				1,529
Significance Threshold				10,000
Significant?				<b>No</b>
<b>Year 2031</b>				
Ships - Transit and Anchoring	11,768	0.187	0.568	11,924
Ships – Hoteling	5,361	0.026	0.377	5,462
Product Loading	739	0.001	0.012	742
Tugboats	491	0.003	0.023	497
Total Operations Year 2031	18,359	0.218	0.980	18,612
Amortized Construction and Operations Year 2031				<b>18,714</b>
<b>2031 CEQA Impacts</b>				
CEQA Baseline Emissions				11,424
Proposed Project Minus CEQA Baseline				7,290
Significance Threshold				10,000
Significant?				<b>No</b>
<b>Year – 2048</b>				
Ships Transit and Anchoring	16,555	0.264	0.799	16,774
Ships Hoteling	7,542	0.037	0.531	7,683
Product Loading	930	0.001	0.011	933
Tugboats	691	0.005	0.033	700
Total Operations Year 2048	25,718	0.306	1.373	26,090
Amortized Construction and Operations Year 2048				<b>26,192</b>
<b>2048 CEQA Impacts</b>				
CEQA Baseline Emissions				11,424
Proposed Project Minus CEQA Baseline				14,768

Source Category	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
Significance Threshold				10,000
Significant?				Yes

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**Informational Assessment: The proposed Project would not be consistent with certain statewide, regional and local plans and policies.**

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The State of California, the City of Los Angeles, and LAHD have adopted plans and policies (see Table 3.3-6) to reduce GHG emissions.

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None of these plans or policies constitutes regulations or requirements adopted to implement a statewide, regional or local plan for reduction or mitigation of GHG emissions. (See *Center for Biological Diversity v. Cal. Dept. of Fish and Wildlife (Newhall Ranch)* (2015) 62 Cal.4th 204, 223.) Therefore, a significance determination cannot be made using these factors.

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Nevertheless, for informational purposes, this document provides a discussion of consistency with adopted statewide, regional and local plans and policies to reduce GHG emissions.

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The State of California is leading the way in the United States, related to GHG reductions. Several legislative and municipal targets for reducing GHG emissions, below 1990 levels have been established. Key examples include:

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18

- Assembly Bill 32 (AB 32)

19

1990 levels by 2020

20

- Senate Bill 32 (SB 32)

21

40 percent below 1990 levels by 2030

22

- City of Los Angeles Sustainable City pLAn

23

45 percent below 1990 levels by 2025

24

60 percent below 1990 levels by 2035

25

80 percent below 1990 levels by 2050

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LAHD has been tracking GHG emissions, in terms of carbon dioxide equivalents (CO<sub>2</sub>e) since 2005 through the LAHD municipal GHG inventory and the annual inventory of air emissions (see Figure 3.3-1). As illustrated below in Figure 3.3-2, Port-related GHG emissions (all three scopes) started making significant reductions since 2006, reaching a maximum reduction in CO<sub>2</sub>e of 15 percent from 1990 levels in 2013. Subsequently, 2014 and 2015 saw GHG levels rise due to a period of port congestion that arose from circumstances outside of the control of either the LAHD or its tenants. This event illustrates a major challenge related to managing GHG-related emissions, as events outside the control of LAHD or its individual tenants will continue to have a varying degree of impact on the progress of reduction efforts.

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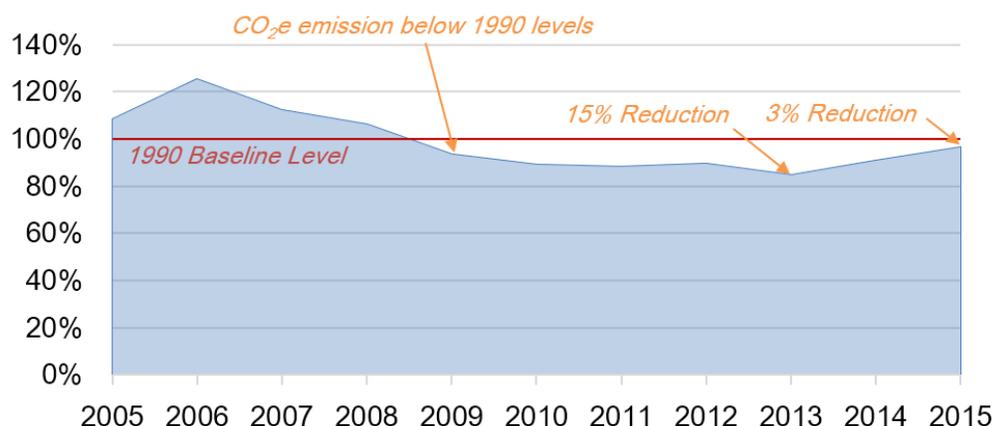
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**Figure 3.3-1: GHG Emissions 2005-2015**

LAHD and its tenants have initiated a number of wide-ranging strategies to reduce all port-related GHGs, which includes the benefits associated with the Clean Air Action Plan (CAAP), Zero Emission Roadmap, Energy Management Action Plan (EMAP), operational efficiency improvements, and land use and planning initiatives. Looking toward 2050, there are several unknowns that will affect future GHG emission levels. These unknowns include grid power portfolios; maritime industry preferences of power sources and fuel types for ships, harbor craft, terminal equipment, locomotives, and trucks; advances in cargo movement efficiencies; the locations of manufacturing centers for products and commodities moved; and increasing consumer demand for goods. The key relationships that have led to operational efficiency improvements to date are the cost of energy, current and upcoming regulatory programs, and the competitive nature of the goods movement industry. We anticipate these relationships will continue to produce benefits with regards to GHG emissions for the foreseeable future.

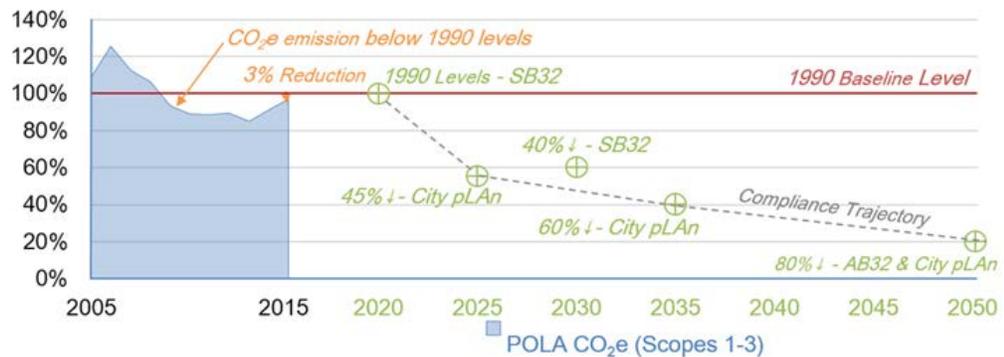
There is no single emission reduction strategy that easily reduces the sources to meet the various interim targets let alone the final 80 percent reduction, so it will take continued research, evaluation, engagement, innovation, demonstrations, investment, and coordination/action to achieve the 2050 target. LAHD is playing a leading role in implementing innovative programs, promoting research, applying for grant funding (e.g. with our partners, and facilitating engagement and analysis on an international level).

The 2017 Scoping Plan identifies potentially feasible mitigation measures that could be considered for individual projects under CEQA; however, several of the measures apply to typical residential and commercial land development projects, and not to industrial-type projects that are typical in the Port (and appropriate for the proposed Project). The Scoping Plan Update directs agencies approving CEQA projects in jurisdictions without a qualified Climate Action Plan to implement all feasible measures to reduce GHG emissions. While the Scoping Plan does not require a “no net increase” or zero net emissions threshold, it states that ARB believes this would be “appropriate overall objective for new development” and notes that “our ports [will be] moving towards zero- and near-zero emissions technologies.” According to the Scoping Plan, GHG mitigation measures should be designed to prioritize on-site design features, and/or direct investments in local/regional programs that reduce GHG emissions in the vicinity of project. Where these are not feasible or are insufficient to mitigate impacts to less-than-significant levels, then purchase

of carbon credits through a recognized and reputable, accredited carbon registry would be appropriate.

Figure 3.3-2 below shows the key GHG targets listed above with a postulated ‘compliance trajectory’ set to meet the most stringent targets. It is important to note that the targets shown in Figure 3.3-2 are not project specific targets, and that no specific project level regulations or requirements have been developed by agencies for implementation of these plans. Instead, these targets are goals meant to apply to all applicable GHG sources in aggregate, which means some sources will need to go beyond these targets, while others may not be able to meet the target level.

As shown in Figure 3.3-2, LAHD emission inventories show that Port-wide emissions CO<sub>2</sub>e emissions are already below the Port’s 1990 levels.



**Figure 3.3-2: Actual GHG Emissions 2005-2015 & 2015-2050 - GHG Compliance Trajectory**

Nevertheless, with the very aggressive targets shown in the figure above, it is not possible at this time to determine whether Port-wide emissions or any particular Project applicant will be able to meet the compliance trajectory shown in Figure 3.3-2 above. Compliance will depend upon future regulations or requirements that may be adopted, future technologies that have not been identified or fully developed at this time, or any other Port-wide GHG reduction strategies that may be established. As a result, while LAHD will continue to work with its tenants to implement aggressive GHG reduction measures to meet the compliance trajectory that is shown, LAHD cannot with certainty confirm compliance with these future plans and policies at this time.

Table 3.3-6 presents more detailed information on plans, and policies adopted for the purpose of reducing GHG emissions:

**Table 3.3-6: Consideration of State and Local GHG-Reducing Plans, and Policies**

Plan or Policy	Plan/Policy Measure	Discussion
<b>EO S-3-05 (2005)</b> established the following GHG emissions-reduction targets for California State agencies: (1) Year 2000 levels by 2010; (2) year 1990	Established State-wide goals that are not directly binding on local agencies conducting project-level analysis.	EO S-3-05 established State targets and directed State legislature to develop legislation to address those targets.  The proposed Project analysis has quantified GHG impacts for 2019, 2031, and 2048 and has identified feasible mitigation measures. The analysis projects that impacts beyond 2030 would remain constant; this

**Table 3.3-6: Consideration of State and Local GHG-Reducing Plans, and Policies**

Plan or Policy	Plan/Policy Measure	Discussion
levels by 2020; and (3) 80 percent below 1990 levels by 2050.		<p>is a conservative assumption because it takes into account only GHG emission reduction technologies in existing regulations and does not take into account GHG emission reductions anticipated due to future regulatory development or future Port-wide GHG emission reduction efforts.</p> <p>EO S-3-05 did not identify project-level measures. The proposed Project would comply with existing regulations, applicable to project activities, and would, by law, comply with future regulatory requirements, applicable to project activities. However, as the proposed Project would exceed the SCAQMD significance threshold under GHG-1, and since EO-S-3-05 targets were considered in developing the SCAQMD threshold, it was determined that the proposed Project would not be consistent with the State's compliance with GHG reduction goals established under EO S-3-05.</p>
<p><b>AB 32– California Global Warming Solutions Act (2006)</b> codified the following statewide targets under S-3-05: (1) Year 2000 levels by 2010; and (2) Year 1990 levels by 2020.</p>	<p>Established State-wide goals that are not directly binding on local agencies conducting project-level analysis.</p>	<p>AB 32 codified EO S-3-05 targets through 2020 and directed State regulatory agencies to develop rules and regulations to meet the 2020 State targets. To date, no such rules and regulations have been promulgated that would be binding on the proposed Project.</p> <p>The proposed Project analysis has quantified GHG impacts for 2020 and has identified feasible mitigation measures.</p> <p>AB 32 did not identify project-level measures. The proposed Project would comply with existing regulations, applicable to project activities, and would, by law, comply with future regulatory requirements, applicable to project activities.</p> <p>However, because the proposed Project would exceed the SCAQMD significance threshold under GHG-1, and since AB 32 targets were considered in developing the SCAQMD threshold, it was determined that the proposed Project would not be consistent with the State's compliance with AB 32.</p>
<p><b>ARB's AB 32 Scoping Plan (2008)</b> set a Statewide roadmap for achieving the following AB 32 State targets: (1) Year 2000 levels by 2010; and</p>	<p>The Scoping Plan includes general recommendations to reduce GHG emissions from various sources. The most relevant to the proposed Project are the Goods Movement</p>	<p>AB 32 Scoping Plan describes the State's approach to achieve the GHG emissions reduction goal to 1990 levels by 2020. The Scoping Plan's GHG reduction actions include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 program implementation fee regulation to fund</p>

**Table 3.3-6: Consideration of State and Local GHG-Reducing Plans, and Policies**

Plan or Policy	Plan/Policy Measure	Discussion
(2) Year 1990 levels by 2020.	Recommendations, which are generally suited to the proposed Project, although they are not legally binding on local agencies conducting project-level analysis.	<p>the program. The Scoping Plan's reduction actions do not identify specific project-level measures.</p> <p>The Scoping Plan identified a discrete early action, regulation for port operations. This action resulted in the promulgation of regulation for electrification of ship auxiliary engines while at berth. The ship types included in the resulting regulation excluded marine tankers. However, the proposed Project would use shore-side electric pumps to off-load marine product from the ship to shore-side tanks. The use of shore-side electric pumps reduces the GHG emissions associated with ship boilers used to drive ship off-loading pumps.</p> <p>The proposed Project analysis has quantified GHG impacts for 2020 and has identified feasible mitigation measures. The proposed Project would comply with existing regulations, applicable to project activities, and would, by law, comply with future regulatory requirements, applicable to project activities, developed as part of the Scoping Plan. The proposed project GHG emissions are not expected to exceed 10,000 MT per year until after 2020. The proposed Project would therefore, be consistent with the State's implementation of the AB 32 Scoping Plan.</p>
<b>AB 32 Scoping Plan Update (2014)</b> builds upon the 2008 Scoping Plan with new strategies to achieve the following AB 32 State target: Year 1990 levels by 2020.	The Scoping Plan includes general recommendations to reduce GHG emissions from various sources.	<p>AB 32 Scoping Plan Update highlights the State's progress toward meeting the 2020 GHG emission reduction goal, identifies funding opportunities to reduce GHG emissions through State planning and low carbon investments, identifies climate change priorities for 5 years, and sets the groundwork to reach long-term goals of EO S-3-05.</p> <p>The Scoping Plan Update includes specific recommended actions for lead agencies, identifies possible regulatory actions for vehicles and fuels, and introduces the need for a Sustainable Freight Initiative and the 2014 Sustainable Freight Strategy (technical assessments that identify near-term and 2020 actions for each freight sector). The Scoping Plan Update identifies the following technology-specific objectives for the freight/transportation sector but does not identify specific direct project-level measures:</p> <ul style="list-style-type: none"> <li>• Accelerate the introduction and deployment of zero and near-zero emission trucks, including trucks capable of zero-emission miles.</li> </ul>

**Table 3.3-6: Consideration of State and Local GHG-Reducing Plans, and Policies**

Plan or Policy	Plan/Policy Measure	Discussion
		<ul style="list-style-type: none"> <li>• Continue improving the efficiency of trucks (both engines and vehicles).</li> <li>• Support development and introduction of locomotives capable of zero emission track miles.</li> <li>• Accelerate cleanup of the existing locomotive fleet.</li> <li>• Increase near-dock rail in Oakland/Los Angeles/Long Beach.</li> <li>• Reduce GHGs and criteria pollutants from ocean-going vessels.</li> <li>• Build on the work done by the U.S. Department of Defense on cleaner fuels/aircraft design to reduce GHGs and criteria pollutants from air cargo.</li> <li>• Identify efficiency improvements on all levels (equipment, sector, and system).</li> <li>• Showcase strategies and best practices.</li> </ul> <p>The proposed Project analysis has quantified GHG impacts and has identified feasible mitigation measures. The proposed Project would help to implement the objective in the Scoping Plan Update of reducing GHGs and criteria pollutants from ocean-going vessels.</p> <p>The proposed Project would comply with existing regulations, applicable to project activities, and would, by law, comply with future regulatory requirements, applicable to project activities, developed as part of the Scoping Plan Update.</p> <p>Further, the proposed project GHG emissions are not expected to exceed 10,000 MT per year until after 2020. The proposed Project would therefore, be consistent with the State’s implementation of the AB 32 Scoping Plan Update.</p>
<p><b>EO B-30-15</b> established a Statewide GHG emissions-reduction target of 40 percent below 1990 levels by 2030.</p>	<p>Established State-wide goals that are not directly binding on local agencies conducting project-level analysis.</p>	<p>EO B-30-15 established a State target of 40 percent below 1990 levels by 2030 and directed State legislature to develop legislation to address that State target. This target was established in order to ensure the State meets the EO S-3-05 target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050.</p>

**Table 3.3-6: Consideration of State and Local GHG-Reducing Plans, and Policies**

Plan or Policy	Plan/Policy Measure	Discussion
		<p>The proposed Project analysis has quantified GHG impacts for 2030 and has identified feasible mitigation measures. The analysis projects that impacts beyond 2030 would remain constant; this is a conservative assumption because it takes into account only GHG emission reduction technologies pursuant to existing regulations and does not take into account GHG emission reductions anticipated in future regulatory efforts.</p> <p>Similar to EO S-3-05, EO B-30-15 did not identify project-level measures. The proposed Project would comply with existing regulations, applicable to project activities, and would, by law, comply with future regulatory requirements, applicable to project activities. However, as the proposed Project would exceed the SCAQMD significance threshold under GHG-1, and since EO-S-3-05 targets were considered in developing the SCAQMD threshold, it was determined that the proposed Project would not be consistent with the State's compliance with the GHG reduction goals established under EO B-30-15.</p>
<p><b>SB 32 (2016)</b> codified the EO B-30-15 target: 40 percent reduction below 1990 levels by 2030.</p>	<p>Established State-wide goals that are not directly binding on local agencies conducting project-level analysis.</p>	<p>SB 32 codified EO B-30-15 target through 2030 and directed State regulatory agencies to develop rules and regulations to meet the 2030 State target but did not identify project-level measures. The proposed project analysis has quantified GHG impacts for 2030 and has identified feasible mitigation measures.</p> <p>Similar to AB 32, SB 32 did not identify project-level measures. The proposed Project would comply with existing regulations, applicable to project activities, and would, by law, comply with future regulatory requirements, applicable to project activities.</p> <p>However, because the proposed Project would exceed the SCAQMD significance threshold under GHG-1, and since EO-S-3-05 targets were considered in developing the SCAQMD threshold, it was determined that the proposed Project would also not be consistent with the State's compliance with SB 32.</p>
<p><b>ARB's 2017 Climate Change Scoping Plan Update:</b> The Proposed Strategy for</p>	<p>The Scoping Plan includes general recommendations to reduce GHG</p>	<p>The 2017 Scoping Plan builds on the state's existing programs and integrates efforts to reduce both GHGs and air pollution. Per the 2017 Scoping Plan, California's future climate strategy will focus on zero-</p>

**Table 3.3-6: Consideration of State and Local GHG-Reducing Plans, and Policies**

Plan or Policy	Plan/Policy Measure	Discussion
<p>Achieving California’s 2030 Greenhouse Gas Target</p>	<p>emissions from various sources.</p>	<p>and near-zero emission vehicle technologies; continued investment in renewables, such as solar roofs, wind, and other types of distributed generation; greater use of low carbon fuels; integrated land conservation and development strategies; coordinated efforts to reduce emissions of short-lived climate pollutants; and an increased focus on integrated land use planning.</p> <p>The proposed Project analysis has quantified GHG impacts and has identified feasible mitigation measures. The proposed Project would not conflict with the objectives in the Scoping Plan Update, including reducing GHGs and criteria pollutants from ocean-going vessels.</p> <p>The proposed Project would comply with existing regulations, applicable to project activities, and would, by law, comply with future regulatory requirements, applicable to project activities, developed as part of the Scoping Plan Update.</p> <p>The proposed Project would therefore not conflict with the State’s implementation of the AB 32 Scoping Plan Update.</p>
<p><b><i>Southern California Association of Governments (SCAG) 2012-2035 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS) (2012).</i></b> Provides for development of a sustainable communities strategy in the context of the existing regional transportation planning process.</p>	<p>Not directly binding on project-level analysis, but certain elements of the proposed Project serve to forward the RTP/SCS goals.</p>	<p>SCAG developed the 2012-2035 RTP/SCS with the primary goal of increasing mobility for the region’s residents and visitors but also with an emphasis on sustainability, per SB 375.<sup>a</sup> Although SB 375 focuses on light-duty vehicle emissions, SCAG’s RTP/SCS includes additional regional strategies directed at Goods Movement.</p> <p>The RTP/SCS Goods Movement Appendix identifies strategies for regional highway improvements, regional rail improvements (i.e., on-dock and near-dock rail), and San Pedro Bay ports access projects.</p> <p>The RTP/SCS Goods Movement Appendix also identifies goods movement environmental strategies such as the short-term deployment of commercially available lower-emission trucks and locomotives and the longer term strategy development of phased implementation of a zero- and near-zero emission freight system. The longer term strategies include technology and pilot studies, demonstration projects, regulatory development, and funding commitments. These reflect regional, industry-wide or port-wide</p>

**Table 3.3-6: Consideration of State and Local GHG-Reducing Plans, and Policies**

Plan or Policy	Plan/Policy Measure	Discussion
		<p>strategies, but are not directly binding on project-level analysis. The Port has implemented several short and longer term strategies as part of the CAAP and CAAP Update as follows: (1) The Clean Truck Program limits Port access to 2007 or newer trucks; (2) The Sustainable Construction Guidelines limit Port access to 2010 or newer trucks (see mitigation measure MM AQ-2 in Section 3.1, Air Quality and Meteorology); (3) The Port's Technology Advancement Program evaluates and helps bring to market emerging and emission reducing technologies.</p> <p>The proposed Project would comply with CAAP measures, existing regulations that are applicable to project activities, and would, by law, comply with future regulatory requirements that are suited to project activities. The proposed Project would help implement and therefore is consistent with SCAG's RTP/SCS.</p>
<b><i>South Coast Air Quality Management District GHG-Emissions Reduction Thresholds and Guidance</i></b>	Applicable.	Refer to GHG-1 impact evaluation.
<b><i>San Pedro Ports Clean Air Action Plan (2007) and Update (2010)</i></b>	Not directly applicable to GHG reductions.	<p>Although the CAAP and Update are primarily designed to reduce criteria pollutants and air toxics, the following strategies also reduce GHG emissions:</p> <p>OGV1: Vessel Speed Reduction (VSR) Program  OGV2: Reduction of At-Berth OGV Emissions  HC1: Performance Standards for Harbor Craft.</p> <p>Of these measures, OGV1 is applicable to the proposed Project. CAAP measure HC1 is a port-wide measure; RL1 through 3 do not apply to the proposed Project. The proposed Project would therefore, not conflict with the CAAP and CAAP Update.</p>
<b><i>Port of Los Angeles "Actions to Reduce Greenhouse Gas Emissions by 2050" (Submitted to City</i></b>	Not binding on project-level analysis, but certain elements of the proposed Project serve to forward the goals.	The document outlines actions/strategies that are either being implemented or evaluated to continue the reduction of GHG emissions and meet a target of 35 percent below 1990 levels by 2035 and 80 percent below 1990 levels by 2050. Table 3 of the document lists GHG emissions reduction strategies for Port operations as well as the applicable implementing

**Table 3.3-6: Consideration of State and Local GHG-Reducing Plans, and Policies**

Plan or Policy	Plan/Policy Measure	Discussion
<i>of Los Angeles, 2014)</i>		<p>programs. The document does not identify new programs or measures; it lists existing initiatives and reiterates the Port's commitment to continued collaboration with the international maritime community, as well as between all stakeholders and regulators.</p> <p>The proposed Project would comply with CAAP and CAAP Update measures, applicable to project activities (the CAAP is identified as one of the implementing programs in Table 3 of the document), and therefore would be consistent with the Port's implementation of the Port of Los Angeles Actions to Reduce GHG Emissions by 2050.</p>

Notes:

- a. SB 375 – Sustainable Communities and Climate Protection Act of 2008 set regional targets for GHG emissions reductions from passenger vehicle use for 2020 and 2035 for each region covered by one of the State's metropolitan planning organizations (MPO). SB 375 further required that SCAG include an SCS in the RTP that reduces GHG emissions from passenger vehicles.

### 1 3.3.4.6 Summary of Impact Determinations

2 Table 3.3-7 provides a summary of the impact determinations of the proposed Project  
3 related to GHGs. This table allows easy comparison of the potential impacts of the  
4 proposed Project.

5 For each type of potential impact, the table provides a description of the impact, the  
6 impact determination, any applicable mitigation measures, and residual impacts (i.e., the  
7 impact remaining after mitigation). All impacts, whether significant or not, are included  
8 in this table.

9 **Table 3.3-7: Summary Matrix of Impacts and Mitigation Measures for GHG**  
10 **Associated with the Proposed Project**

Environmental Impacts	Impact Determination	Mitigation Measures	Impacts after Mitigation
<b>Impact GHG-1:</b> The proposed Project would generate GHG emissions, either directly or indirectly that would exceed the SCAQMD 10,000 mty CO <sub>2</sub> e threshold.	Significant	<b>MM AQ-5: Vessel Speed Reduction Program.</b>	Significant and Unavoidable

### 11 3.3.4.7 Mitigation Monitoring

12 Air quality mitigation and lease measures that also reduce GHG emissions are addressed  
13 in Section 3.1, Air Quality and Meteorology, and are summarized here, as well as LM  
14 GHG-1, which is specific to GHG.

<b>GHG-1: The proposed Project would generate GHG emissions, either directly or indirectly, that would exceed the SCAQMD 10,000 mty CO<sub>2</sub>e threshold.</b>	
Mitigation Measure	<b>MM AQ-5: Vessel Speed Reduction Program (VSRP).</b> 95 percent of tankers calling at Shell Marine Oil Terminal will be required to comply with the expanded VSRP at 12 knots between 40 nm from Point Fermin and the Precautionary Area.
Timing	During operation.
Methodology	LAHD will include this mitigation measure in lease agreements with tenants
Responsible Parties	LAHD.
Residual Impacts	Significant and unavoidable.
Mitigation Measure	<p><b>LM AQ-1. Periodic Review of New Technology and Regulations.</b> LAHD will require the tenant to review any LAHD-identified or other new emissions-reduction technology, determine whether the technology is feasible, and report to LAHD. Such technology feasibility reviews will take place at the time of LAHD's consideration of any lease amendment or facility modification for the proposed project site. If the technology is determined by LAHD to be feasible in terms of cost and technical and operational feasibility, the tenant will work with LAHD to implement such technology.</p> <p>Potential technologies that may further reduce emissions and/or result in cost-savings benefits for the tenant may be identified through future work on the Clean Air Action Plan (CAAP). Over the course of the lease, the tenant and LAHD will work together to identify potential new technology. Such technology will be studied for feasibility, in terms of cost, technical and operational feasibility, and emissions reduction benefits. As partial consideration for the lease amendment, the tenant will implement not less frequently than once every five years following the effective date of the permit, new air quality technological advancements, subject to mutual agreement on operational feasibility and cost sharing, which will not be unreasonably withheld. The effectiveness of this measure depends on the advancement of new technologies and the outcome of future feasibility or pilot studies.</p>
Timing	During operation.
Methodology	LAHD will include this lease measure in lease agreements with tenants.
Responsible Parties	Shell, LAHD
Residual Impacts	Significant and unavoidable.

<p>Lease Mitigation</p>	<p><b>LM GHG-1: GHG Credit Fund.</b> SCAQMD has established a CEQA threshold for greenhouse gas emissions (GHGs) of 10,000 metric tons (MT) per year. The project would exceed this level in year 27 of their 30-year lease by approximately 3,500 MT per year. This is based on the assumption that both berths will be in operation.</p> <p>The Los Angeles Harbor Department (LAHD) shall establish a GHG Mitigation Fund (“Fund”), which may be accomplished through a Memorandum of Understanding with the California Air Resources Board or another appropriate entity, to mitigate project GHG impacts to the maximum extent feasible. The Fund shall be used for GHG-reducing projects and programs on Port of Los Angeles property.</p> <p>Upon completion of the second wharf/berth at the Shell Marine Oil facility, the Tenant shall purchase GHG credits from the LAHD GHG Mitigation Fund to mitigate 3,500 MT at the then existing market rate. Tenant’s Fund contribution shall not exceed one percent of the average of the previous five years’ rents paid by the Tenant to the LAHD.</p> <p>If LAHD is unable to establish the fund within a reasonable period of time, the Tenant shall instead purchase credits from an approved GHG offset registry in the same amount.</p>
<p>Timing</p>	<p>Payable upon substantial completion of Project construction.</p>
<p>Methodology</p>	<p>LAHD shall include LM GHG-1 in the lease agreement with tenant. LAHD shall monitor implementation of mitigation measures during operation.</p>
<p>Responsible Parties</p>	<p>Shell, LAHD.</p>
<p>Residual Impacts</p>	<p>Significant and unavoidable.</p>

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### 3.3.5 Significant Unavoidable Impacts

GHG emissions in year 2048, or when the proposed Project exceeds 139 annual vessel calls, would be significant and unavoidable after mitigation for the proposed Project.

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